

and his lectures in plant geography, especially those dealing with plant dispersal and dispersal mechanisms, were replete with demonstrations that were both highly instructive and entertaining. He had gathered great quantities of material for these lectures during his world travels. The lecture room was always adorned with large poster-like charts, illustrations or maps all attractively done in color. His lectures were rich in anecdotes of personal experiences vividly told. He was especially fond of giving a ludicrous account of himself—a large man with umbrella in hand being carried through the forest by diminutive natives, all the while booming out instructions to the native collectors as to what to collect and how to prepare it. Needless to say his lectures were always well attended.

He was a man of outstanding personality and had the habit of speaking his mind honestly, freely, and richly. Naturally there were those who found this uncomfortable. There was no room in his heart for picayunishness, personal animosity, disloyalty or intrigue; however, he suffered deeply but forgivingly of these traits in the hearts of others.

During the forty-eight years that Dr. Setchell was associated with the University of California, he saw and helped it develop from a young western school to one of the great state universities of this country. He was active in the life of the University and was one of its important figures. In 1931 his colleagues honored him with the Faculty Research Lectureship. With his death, students and associates have lost another of the contacts with classicists of the past.—HERBERT L. MASON.

## REVIEWS

*Studies of Evaporation and Transpiration Under Controlled Conditions.* By EMMETT MARTIN. Carnegie Institution, Washington, Publ. 550. Pp. 1-48. 1943. Printed by offset.

The phenomenon of transpiration has justly commanded the attention of botanists, many of whom have attempted to get an index which would be useful in judging the habitat. The author of this work has carefully measured the transpirational loss of water from *Helianthus* and from *Ambrosia* for the purpose of determining its correspondence with evaporation from imbibed non-living surfaces. Many of his experiments employed small potted plants in special chambers though certain out-door comparisons were made at Santa Barbara, California, and at or near Colorado Springs, Colorado.

The resistance of the plant to water losses was more than once demonstrated by the work. For example, the relation between the rate of transpiration and relative humidity was approximately linear for young plants, but the rates of transpiration of older

plants were less than for younger ones at temperatures of 27° and 38° C.; though age seemed to make no difference at 49° C. Apparently the author overlooked the careful work on age and transpirational losses conducted by Bartholomew.

Records obtained from inserted thermocouples showed that a leaf exposed to radiation equivalent to that of noon sunlight may still maintain an internal temperature lower than that of the surrounding air. Transpiration reduced the temperature of the leaves 10° C. or less. At higher leaf temperatures the depression of the temperature of the leaf below the air decreased, probably due to the increased permeability of the cuticle and epidermal cell walls to water.

The regulatory power of stomata of *Helianthus* decreased as the air temperatures went up from 27° to 49° C. as shown by an increase in the ratios of night-time to daytime transpiration rates though the possibility of injury at 49° C. appears to have been disregarded.—H. S. REED, Department of Botany, University of California, Berkeley.

*Systematics and the Origin of Species from the Viewpoint of a Zoologist.* By ERNST MAYR. Pp. xiv + 334. Columbia University Press, New York. 1942. \$4.00.

This important work might better have been entitled "The Origin of Species [Microevolution] and [the Application of this Concept to] Systematics," for one does not have to read many pages before he discovers that traditional descriptive systematics has contributed very little to the discussion aside from the mechanics of nomenclature. The subject is approached from the broad viewpoint of a general biologist who not only understands the principles of genetics, ecology, morphology, physiology, and geographical distribution, but who is able to apply these to the problems of systematics. The result is a sound and pleasing philosophy of the nature of systematic units which seems to meet the requirements of the evidence from each of these diverse approaches.

As a specialist in one of the most highly developed branches of systematic biology (ornithology), Dr. Mayr is eminently well qualified to write on the subject of the origin of species and systematics. The biological array is so vast that it is only by the intensive study of a limited group that one may gain an insight into the forces which must govern the entire assemblage of groups. With a worldwide representation of only 8500 species (comparable in number to the "good" species of angiosperms indigenous to the western United States, but incomparably better known), the birds offer unusually favorable material for the formulation of biological principles. The systematic botanist may find many of Dr. Mayr's illustrative examples unfamiliar, but often he will be